

REMARKS

This application has been amended. Specifically, claims 13 and 20 have been amended to define the process claimed therein as a TEMPO-free process of cleaning a polymer membrane. Support for these amendments can be found at page 2, lines 16-18 and page 5, lines 10-13, respectively, of the specification as filed. "TEMPO" is identified in the specification as the compound 2,2,6,6-tetramethylpiperidine-*N*-oxyl. (See page 1, lines 24-25). In addition, claim 13 has been amended to select a peroxide compound as the oxidizing compound and claim 20 has been amended to define a process using a solution containing a hypohalous acid. Support for these amendments can be found in the claims as originally filed. Claim 14 has been amended to clarify that "l" is intended to designate "liters," and is not the number "1." Thus, no new matter has been added by this Amendment. Claim 21 has been amended to depend from claim 20, and claim 19 has been cancelled. Claims 13-18 and 20-22 are currently pending, of which claims 13 and 20 are in independent form.

Claim for Priority

Applicants note that the Office Action fails to acknowledge Applicants' claim for foreign priority to European Patent Application No. 02077580.5, filed on June 28, 2002, which was identified in the Application Data Sheet. According to the Notification of Missing Requirements mailed July 21, 2005, copies of the priority documents were filed on December 28, 2004. Applicants respectfully request that this priority be acknowledged on any subsequent communication from the Office.

Claim Rejection Under 35 U.S.C. 112, second paragraph

Claim 14 stands rejected under 35 U.S.C. 112, second paragraph for indefiniteness because the recitation of "0.5 – 100 l" was asserted to be unclear. Applicants have amended this claim to clarify that "l" is intended to mean "liters." Accordingly, this rejection should be reconsidered and withdrawn.

Double Patenting Rejection

Claims 13 and 18 stand rejected under the judicially created doctrine of obviousness type double patenting because they are allegedly not patentable over claim 18 of

U.S. Patent No. 7,052,557 ("the '557 patent"). Applicants respectfully traverse this rejection.

As amended, claim 13 is directed to a TEMPO-free process of cleaning a polymer membrane filter. Claim 18 of the '557 patent, on the other hand, is directed to a process of cleaning a membrane filter by contacting the filter with a cyclic nitroxyl, where the cyclic nitroxyl is TEMPO or a TEMPO derivative. (The '557 patent, claim 18 and Abstract). There is no motivation or other rationale provided explaining why one skilled in the art would find it obvious to modify claim 18 of the '557 patent to a TEMPO-free process. This represents a clear distinction between the process defined in claim 18 of the '557 patent and the process defined in claim 13 of the present application, making these claims patentably distinguishable from one another. Claim 18 of the present application depends from claim 13 and thus includes all of the limitations thereof. Accordingly, reconsideration and withdrawal of the outstanding obviousness-type double patenting rejection of claims 13 and 18 is respectfully requested.

Claim Rejections Under 35 U.S.C. 103(a)

Claims 13-15, 17 and 19 stand rejected under 35 U.S.C. 103(a) for obviousness over PCT Publication No. WO 97/45523 to Mol et al. (Mol) in view of U.S. Patent No. 5,647,988 to Kawanishi et al. (Kawanishi) and U.S. Patent No. 4,970,005 to Schuchardt. This rejection is respectfully traversed.

Mol is directed to a process for cleaning filters used in the preparation of food. The process includes the use of a cleaning system based on the combination of a cyclic nitroxyl compound (TEMPO and derivatives thereof) and a hypohalite.

Mol fails to disclose, teach, or suggest a process for cleaning a polymer filter containing residues from filtering beverages that is TEMPO-free. To the contrary, Mol focuses solely on a process that uses TEMPO. In fact, Mol warns against the use of a TEMPO-free process in describing the detriments of conventional, non-TEMPO based cleaning techniques. (Mol, page 2, lines 25-30). The present invention provides an improved, and often more effective, cleaning method that avoids the undesirable use of nitroxides and high levels of oxidants. As explained beginning on line 24 of page 4 of the specification as filed, it was surprisingly found that the treatment methods of the subject application resulted in cleaning performance equal to or better than the combination of hypochlorite/bromide and TEMPO described in Mol while using considerably less cleaning

chemicals. For instance, the amount of oxidizing agent used according to the present invention was between 100 and 2500 mg of oxidizing agent (hypochlorite) per 1000 liters of beer produced while the process of Mol required about 4500 mg of hypochlorite and additional TEMPO per 1000 of liters of beer produced.

Furthermore, Mol fails to disclose, teach, or suggest the use of a peroxide oxidizing agent used in the presence of a transition metal, which is a feature of claim 13. Mol also fails to disclose, teach, or suggest a process of cleaning a filter which includes backwashing.

Reference to Kawanishi does not cure the deficiencies discussed above. Kawanishi is not directed to cleaning polymer filters used in filtering beverages. Instead, Kawanishi is directed to a method of back-washing ceramic membranes used in wastewater treatment. Polymer membranes and ceramic membranes have widely divergent properties with respect to, for example, thermal stability, chemical stability, flexibility, pore size distribution, etc. Given these differences between polymer and ceramic membranes, one skilled in the art would not consider the teachings of Kawanishi relevant to cleaning filters used in the beverage industry.

Schuchardt, like Kawanishi, is also not directed to treating polymer filters used in the beverage industry. In fact, Schuchardt is directed to treating an aqueous stream of wastewater containing a polyether polyol in order to remove the polyols from the stream. One skilled in the art would not consider the teachings of Schuchardt particularly relevant in treating a polymer filter used in the beverage industry.

Therefore, claims 13-15, 17 and 19 are not obvious over the combination of Mol, Kawanishi, and Schuchardt. Accordingly, reconsideration and withdrawal of the rejection of these claims under 35 U.S.C. 103(a) is respectfully requested.

Claims 16 and 18 stand rejected under 35 U.S.C. 103(a) for obviousness over Mol in view of Kawanishi and Schuchardt and further in view of U.S. Patent No. 5,667,690 to Doddema et al. (Doddema). This rejection is traversed. The Office Action contends that the combination of Mol, Kawanishi and Schuchardt teaches the process of claims 16 and 18 substantially as claimed with the exception that these documents fail to disclose the use of a transition metal that is complexed with a polyamine or the use of a peracid oxidizing agent.

As discussed above, however, Mol, Kawanishi and Schuchardt fail to teach, disclose, or suggest the process of claim 13, from which claims 16 and 18 depend. Doddema

is directed to a process for removing compounds from the natural environment by treating the environment with a complex of a transition metal and a polyamine in the presence of a peroxide. Like Kawanishi and Schuchardt, Doddema is not directed to a process for treating a polymer membrane filter, much less a polymer membrane filter that is used to filter beverages. Thus, one skilled in the art would not consider the teachings of Doddema relevant in developing a process for cleaning a polymer filter containing residues from filtering beverages or otherwise modifying the TEMPO-based process of Mol. Accordingly, it is respectfully requested that the rejection of claims 16 and 18 under 35 U.S.C. 103(a) for obviousness be reconsidered and withdrawn.

Claim 20 stands rejected under 35 U.S.C. 103(a) for obviousness over Mol in view of Kawanishi. This rejection is traversed for much the same reasons as discussed above with respect to claim 13. Mol is directed to a process that includes the combination of a cyclic nitroxyl compound (i.e. TEMPO and derivatives thereof) and a hypohalite. Mol fails to disclose, teach, or suggest a process for cleaning a polymer filter containing residues from filtering beverages that is TEMPO-free. In fact, Mol focuses solely on a process that uses TEMPO and even warns against the use of a TEMPO-free process in describing the shortfalls of conventional, non-TEMPO based cleaning techniques. (Mol, page 2, lines 25-30).

The present invention provides an improved, more effective, cleaning method that avoids the use of nitroxides and high levels of oxidants. It was surprisingly found that the treatment methods of the subject application result in cleaning performance equal to or better than the combination of hypochlorite/bromide and TEMPO described in Mol while using considerably less cleaning chemicals. (*See Specification, page 4, line 24 et seq.*).

Reference to Kawanishi does not cure the deficiencies in Mol. Kawanishi is directed to a method of back-washing ceramic membranes used in wastewater treatment, not polymer membranes used in the beverage industry. Polymer membranes and ceramic membranes are considerably different and have considerably different properties. Given these differences between polymer and ceramic membranes, one skilled in the art would not consider the teachings of Kawanishi relevant to cleaning filters used in the beverage industry.

Accordingly, reconsideration and withdrawal of the rejection of claim 20 under 35 U.S.C. 103(a) is respectfully requested.

Claims 21 and 22 stand rejected under 35 U.S.C. 103(a) for obviousness over Mol in view of Kawanishi and Schuchardt, and further in view of U.S. Patent No. 4,740,308

to Fermont et al. These claims now depend from claim 20 and thus include all of the limitations thereof. For the reasons discussed above, claim 20 is not obvious over the combination of Mol and Kawanishi. The additionally cited documents do not compensate for the fact that Mol teaches a process of treating a membrane used in the beverage industry using a TEMPO-based cleaning solution while Applicants have found a TEMPO-free process that provides better, more efficient cleaning of a polymer membrane used in the beverage industry. Accordingly, the rejection of claims 21 and 22 should likewise be withdrawn.

CONCLUSION

For all the foregoing reasons, Applicants submit that the pending claims are patentable over the cited documents of record and are in condition for allowance. Accordingly, reconsideration of the outstanding rejections and allowance of pending claims 13-18 and 20-22 are respectfully requested.

Respectfully submitted,

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